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101-03971/

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Project No.: 1948

Canadian Forest Service No. 21

Japan's Value Added Market: Wood Product Attributes and Competition

Attribute Analysis: Wood Furniture

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September 1998

Prepared for and with financial assistance from

Forest Renewal BC

and

Canadian Forest Service under the Contribution Agreement existing between the Government of Canada and Forintek Canada Corp.

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Acknowledgements

Forintek gratefully acknowledges Forest Renewal BC for partially funding this project. The authors would also like to acknowledge the Steering Committee and other industry contacts both in British Columbia and in Japan for this project.

This project was also financially supported by the Canadian Forest Service under the Contribution Agreement existing between the Government of Canada and Forintek Canada Corp.

The authors would also like to acknowledge Ms. Cheryl-lee Fast for all of her help in organising the market research survey material used in Japan.

All errors or omissions remain the responsibility of the authors.

Executive Summary

General Results

- Most consumers replace their furniture (in order of importance) because it is worn out, to change the style or because they are building or moving to a new home.
- For both consumers and designers, durability was the most important attribute for furniture, after price.
- Two thirds of all respondents (that included designers and consumers) want furniture to last 10 years or more with a sizable proportion of respondents expecting furniture to last the life of a house (20-25 years).
- Design and colour of finish are also important attributes for both consumers and designers.
- Both groups indicate opportunities for light coloured furniture such as that made from BC Pine or Hemlock.
- Consumers prefer dark colours for dining rooms and lighter colours for all other rooms.
- Where the furniture is manufactured is not important to either group.
- All respondent groups strongly prefer wood furniture, with metal and plastic the least preferred.
- Both groups prefer Scandinavian and fine European designs. However the greatest growth for the next five years is expected in North American casual, good news for Pine furniture manufacturers in BC.
- American or casual living design is expected to increase much more rapidly than Fine European (2nd), Scandinavian or others.
- Consumers consider casual design most suitable for use in kitchens and living rooms while designers consider this design most suitable for living rooms and bedrooms.
- There are substantial sized market niches for both inexpensive or above average priced furniture for both groups.
- Premium priced furniture is usually located in dining rooms and to a lesser degree in bedrooms and kitchens for consumers.
- Consumers are willing to pay a small premium for natural finishes while designers prefer a natural finish but do not exhibit the same willingness to pay premiums.
    - Living Room Furniture
        - North American (casual) design should capture as much market share as Scandinavian furniture.
        - A lighter colour will increase market share.
        - Increased durability will not impact market share but decreased durability will erode market share.
    - Bedroom and Kitchen Furniture

- North American (casual) design should capture as much market share as Scandinavian furniture.
- Lighter colours increase market share.
- Decreasing price decreases market share while increasing price slightly increases market share.
- Changing the finish to a natural finish does not increase market share.

General Opportunities

- The best opportunity for BC furniture manufacturers is to produce and export furniture for living rooms and to lesser extent bedrooms.
- Design should focus on North American casual, which will require only minor modifications from existing designs to appeal to the Japanese customer.
- Furniture should be durable, carry a quality assurance label and use natural finishes for some of the product line.
- Price should be in the same range as Scandinavian furniture.
- The best opportunity is for regularly priced solid wood furniture of American design (possibly with some Scandinavian influence) that is light in colour, targeted for living rooms; uses natural finish and will last 20 years or more.
  - Build on Canadian Pine furniture manufacturing base and adjust design, size and marketing for the Japanese market.
  - Pricing should be equal to or slightly above existing prices for furniture of Scandinavian design.
  - Develop new line of Hemlock furniture for living room and possibly kitchen.

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1 Introduction

This report presents the results of personal interviews and surveys conducted in Japan from March 1998 to June 1998. Each of the six product groups are presented in separate reports starting with Wood Furniture followed by Outdoor Furnishings, Interior Finish, Wood Structural Members, Engineered Structural Products and Building Systems. This section summarizes the results for Wood Furniture. Table 1 shows which groups were surveyed for each product group.

Table 1: Product Groups and Interview Groups

Product Group	Types of People Interviewed
Building systems	Small builders & consumers
Engineered structural products	Small builders & pre-cutters
Wood structural members	Small builders & pre-cutters
Interior finish	Small builders & designers & consumers
Wood furniture	Consumers & designers
Outdoor furnishings & decking	Consumers

All reports follow the same format. First there is a summary of the general questions for the product category for each group interviewed. The survey questions are summarized with minimal commentary. Many of the questions will be clear from the text but to facilitate ease of use the questionnaire is shown in Appendix 1. Following this summary are the results of the conjoint (or trade-off) analysis for each group interviewed[1]. This includes both simple trade-offs and trade-offs between two variables. The third set of results is a brief summary of the market share analysis. This section briefly examines the implications of changing attributes on market share of different products. The last section summarizes the most meaningful results and identifies opportunities for BC producers.

Information regarding Wood Furniture was collected from two market segments: consumers and designers. Information was collected in Japan from April-June 1998 through direct interviews of 225 consumers and 50 architects located in one of the three major metropolitan areas (Tokyo, Osaka and Nagoya).

[1] For a full discussion of the methods used in this study please see the report titled "Introduction and Methodology for Wood Attribute Analysis.

2 Response to Questionnaire

2.1 Basic Consumer Respondent Demographics[2]

Of the 225 respondents 83% are male and 17% are female. Most are over 30 years old and the average age ranges from the late thirties to the early forties, the prime house buying age group in Japan. Almost all are high school graduates. Over a quarter have completed University and another 28.2% have completed 2 years of University.

Since furniture is most often purchased when consumers either buy a new house or replace their exiting house, information on house purchase is of interest. In terms of who would make the house purchase decision, it is evenly split between the wife and the husband (50:50). Seventy-eight percent currently own a house and expect to upgrade within five years and 22% do not own a house but expect to purchase on within the next five years.

2.2 Quality Issues[3]

Additional questions were included to assist the Wood Products Quality Council of Canada.[4] Results may be of interest to organizations not currently involved in this initiative. Information is first presented for consumers and then for the designers.

2.2.1 Consumers

It is clear that the consumer respondents react positively to quality assurance labels, particularly for houses and interior finishing items as shown in Table 2.

The most confidence placed in a quality label is from the country of purchase, that is a Japanese label (47% of respondents). Thirty two percent of consumers do not care where the label originated and 21% prefer a label from the country of manufacture. That is, half prefer a Japanese label and the other half either prefer a label from the country of manufacture or didn't care.

Respondents consider testing wood products to some quality standard as important or extremely important. The average (on a 5 point scale with 1 = not at all important and 5 = extremely important) was 3.97. Almost all respondents indicate that this standard ranged from important (3) to extremely important (5).

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[2] Results are presented in six separate reports based on product groups, thus some information is repeated. Such repetition will always be footnoted.

[3] Results are presented in six separate reports based on product groups, thus some information is repeated. Such repetition will always be footnoted.

[4] The Wood Products Quality Council of Canada is an industry and FRBC supported organization committed to developing quality standards for the secondary wood sector of BC. It is being organized through the Centre of Advanced Wood Processing (CAWP) located at the University of British Columbia (UBC). Questions on quality were designed by Dr. Robert Kozak (CAWP, UBC)

Table 2: Would an independent quality assurance label increase your level of confidence when purchasing:

Product	% that indicated an increase
Wood furniture	72
Building systems	83
Interior finish	80
Outdoor furnishings	56

Respondents are fairly evenly split when asked their preference between a quality assurance program that certifies quality in the **process** *(how well the product is manufactured)* or quality in the **product** *(how well the product fulfills its intended function)*. Slightly less than half (45.5%) prefer process while slightly more than half (54.5%) prefer product.

Respondents were also asked to identify the relative importance of several factors in determining the quality of wood products. Results are shown in Table 3 with 1 = not at all important and 5 = extremely important. When reading the table, the higher the number the more important the factor.

Table 3: Relative Importance of Quality Factors

Factor	Relative importance
Product conformance *is product defect-free & meet known standards?*	4.53
Product serviceability *is the product easy to maintain and is service speedy and dependable?*	4.44
Product reliability *if used properly, will the product operate without failure over a specified time?*	4.40
Product performance *how does the product perform in its intended function?*	4.38
Product durability *how much can the product be used before it needs to be fixed or replaced?*	4.33
Product aesthetics *how does the product look, feel, etc. and is there a variety of styles?*	4.22
Product features*what types of features does the product have relative to the competition*	3.50
Perceived quality *does the manufacturer have a reputation or a recognizable brand name?*	3.30

It is interesting to note that product conforming to set quality standards is the highest preferred feature in determining the quality of wood products.

2.2.2 Designers

Designers were also asked if an improved consideration of quality for a variety building products would increase their confidence level in a variety of products including wood furniture. Results are shown in Table 4.

Table 4: Would an independent quality assurance label increase your level of confidence when purchasing:

Product	% that indicated an increase
Wood furniture	66
Building systems	72
Interior finish	86
Outdoor furnishings	42

- It is clear an independent quality assurance label would have an impact for these designers for interior finish items, wood furniture and building systems.
- Wood furniture would benefit greatly from a quality assurance label.

Two thirds of designers would have increased confidence in wood furniture if carrying a quality label they have little concern over whether the label is from the country of manufacture or the country of purchase. This provides strong support for a "Made in BC" quality label. At the same time they rank a quality standard as being relatively important (3.6 on a scale of 1-5). Only a slight majority prefers a quality label based on process to one based on product (29:21).

Respondents were also asked to identify the relative importance of several factors in determining the quality of wood products. Results are shown in Table 5 with 1 = not at all important and 5 = extremely important.

It is clear that aesthetics, performance and reliability are the most important product quality attributes in wood products. It is very interesting to note that aesthetics, the beauty of the specific piece of wood, ranks the highest of all factors.

Product features and maintenance requirements rank relatively low but not as low as perceived quality, a concept not yet familiar to many in Japan.

Table 5: Relative Importance of Quality Factors

Factor	Relative importance
Product aesthetics *how does the product look, feel, etc. and is there a variety of styles?*	4.40
Product performance *how does the product perform in its intended function?*	4.34
Product reliability *if used properly, will the product operate without failure over a specified time?*	4.32
Product conformance *is the product defect-free and does it meet with known standards?*	4.14
Product durability *how much can the product be used before it needs to be fixed or replaced?*	4.14
Product serviceability *is the product easy to maintain and is service speedy and dependable?*	3.84
Product features*what types of features does the product have relative to the competition*	3.31
Perceived quality *does the manufacturer have a reputation or a recognizable brand name?*	3.14

2.3 Answers to Questionnaire

2.3.1 Consumers and Wood Furniture

As BC and other provinces move forward in the value chain, wood furniture represents one of the higher levels of value added wood products manufacturing. Questions were designed to assist in determining the opportunities for furniture made from BC wood for the Japanese market. This included type and style of furniture. There were 113 respondents who answered questions regarding wood furniture.

Respondents were asked to rank the three most important attributes of wood furniture. Table 6 summarizes the results and calculates the score by assigning 3 points for a first place ranking, 2 points for a second place ranking, 1 point for a third place ranking and 0 points if the attribute was not ranked.

Table 6: Consumers' Most Important Attributes for Wood Furniture

Attribute	Score
price	227
durability – *(how long it will last)*	170
design is very fashionable	112
colour of finish	96
type of finish	50
where the furniture is made	17
where the furniture is sold	0

- The country of manufacture and the location (or point) of sales are relatively unimportant indicating opportunities for imported products as there is little preference for Japanese made furniture.
- Durability and design are key and it is clear that furniture is a price sensitive product (as are most products)[5].

Wood has a distinct advantage as the preferred material for furniture, as is clear from Figure 1. Personal experience supports the strong cultural and historic Japanese preference for furniture made from wood.

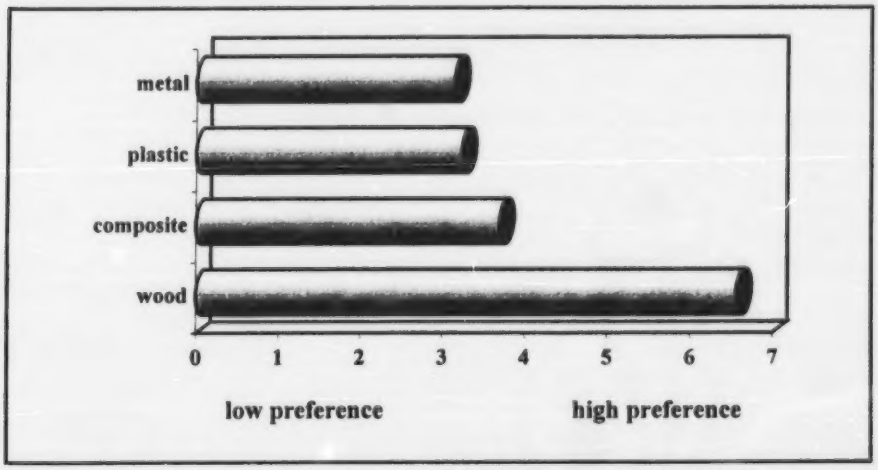

Figure 1: Consumers' Material Preference for Furniture

[5] Throughout all reports durability was defined as longevity. No details regarding how durability was ensured were collected.

Respondents indicate they expect furniture to be long lasting with the vast majority expecting it to last over ten years. This indicates little market for low quality, low price disposable furniture common in some furniture stores in North America. This is logical since durability is second only to price in importance for furniture attributes.

Questions were also asked regarding design, which ranked third in importance of furniture attributes. Respondents were asked, "How do you expect the popularity of the following design to change over the next 3 years". Results are shown in Table 7.

Table 7: Consumers' Expected Furniture Design Changes 1998-2001
(Percent of respondents indicating this change)

Design style	decrease	stay the same	increase
Fine European	23	34	43
Scandinavian	22	46	31
Traditional Japanese	36	41	23
American (casual living)	8	29	63

It is clear that consumers expect the largest growth in American or casual living furniture. Taking these results in combination with consumers' preference for wood suggests opportunities for BC producers of furniture since they are familiar with both the design and the material.

Respondents were also asked why they would replace their furniture. Listed below are the reasons and the percent of respondents that selected that reason.

- Because it is worn out 37%,
- To change style 30%,
- Moving to new house 27%,
- Other (please specify) 07%.

With low levels of house construction in Japan for the next three years there will be a general decline in furniture sold. However the preference for wood and American or casual furniture indicates a potential for growth in these areas, that is a greater market share in a smaller market (or larger slice of a smaller pie).

2.3.2 Designers

Data was also collected on wood furniture from 50 designers in Japan through personal interviews. They were asked to rank the three important attributes in selecting wood furniture. Table 8 summarizes the results and calculates the score by assigning 3points for a first place ranking, 2 points for a second place ranking, 1 point for a third place ranking and so on with no points if the attribute is not ranked.

Table 8: Designers' Relative Importance of Attributes for Furniture

Attribute	Score
Price	86
Durability (e.g. how long they will last)	65
Type of Finish	60
Design	57
Colour	26
Country of Manufacture	6
Where sold	0

- It is interesting to note that both where it is sold and the country of manufacture are relatively unimportant.
- Durability was the most important attribute, after price, which is always a key attribute.
- Following price and durability is a group of fashion attributes including type of finish, design and colour. This is explored in more detail in the trade-off analysis, as is the importance of price.

Designers were also asked which material they prefer for furniture. Ratings were on a scale of 1 – 7 with 7 = high preference and 1 = low preference. Respondents overwhelming prefer wood furniture with composite material ranking second. Metal and plastics rank a distant third and fourth as shown in Figure 2.

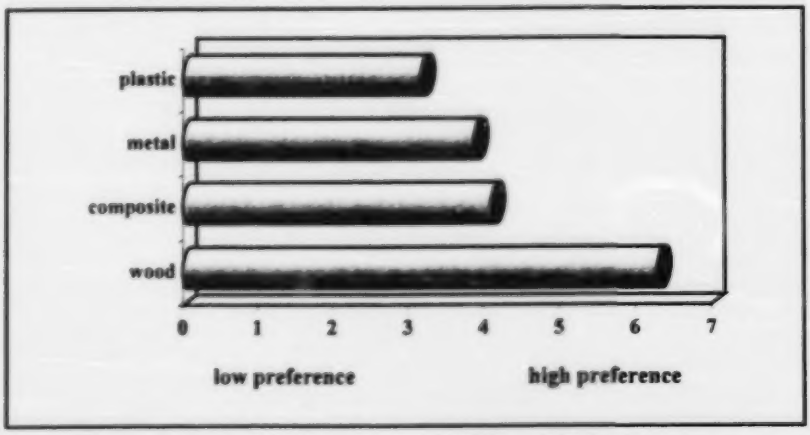

Figure 2: Designers' Preference for Materials for Furniture

Over three quarters of the respondents indicate that they expect furniture to last longer than 10 years while the remaining 23% indicate that it should last 5 – 10 years. No respondent selects a time span of 1-5 years.

Respondents were also asked which type of furniture design they expect to increase over the next three years. There were four design types: fine European, Scandinavian, traditional Japanese and North American (casual living). Following is a summary of the results:

- Almost half of the respondents expect North American or casual living to increase, the majority of the remaining designers expect it to stay the same, with few expecting it to decline.
- Twenty eight percent of respondents expect Fine European furniture to grow while 30% expect it to decline and the remaining 42% expect no change.
- Seventy percent of respondents expect Scandinavian furniture sales to stay the same while 24% expect growth. Only 6% expect a decline.
- Forty percent of respondents expect traditional Japanese furniture to decline while 46% expect sales to stay the same and only 14% expect an increase.

It is clear that casual living or North American design is expected to grow the most in popularity by the design community in Japan. This creates some opportunities for BC Pine furniture manufacturers who are already familiar with North American or casual design.

3.0 Trade-Off Analysis: Wood Furniture

For each product group designers and some consumers were asked to make choices between different types of products. Using trade-off analysis (or conjoint analysis) respondents are forced to trade off different attributes of a product. For example they would not be able to get all the best possible attributes at the lowest possible price but must make choices concerning how they will spend their limited resources. The methodology is complex and will not be discussed in this paper however an example of the type of choice they had to make is shown in Table 9. Each respondent had to make 20 such choices for wood furniture.

Table 9: Example of Choice Made for Wood Furniture

Please select one of the 4 choices shown below.			
1	2	3	4
♦ above average cost ♦ dining room ♦ natural finish ♦ light colour ♦ last 10 years ♦ fine European design	♦ inexpensive ♦ kitchen ♦ paint finish ♦ medium colour ♦ last 10 years ♦ Scandinavian design	♦ average cost ♦ living room ♦ stain with clear finish ♦ very light colour ♦ last 15 years ♦ North American (casual) design	None of the choices are suitable

There are several types of results that will be reported. First will be the relative proportion of respondents that chose a certain level for a specific attribute. These simple trade-offs are discussed briefly. Second will be how respondents made trade-offs among different attributes. This helps determine if respondents are willing to pay a premium for certain attributes. The third type of analysis reported is in the market share section and involves "what if" analysis. For example how much market share would a certain product achieve assuming our respondents are representative of all consumers or designers. Product attributes and their levels were selected with input from industry and government personnel both in BC and Japan. The last section summarizes key results and apparent opportunities.

The results of these attribute analyses will feed into the international trade analysis to assess BC's relative competitiveness in a global market for specific product groups. They will also provide direction for determining which species in BC can be best used to meet Japanese customer requirements and lead to a revision of both key results and opportunities.

3.1 Consumers

For each product group customers were asked to make choices between different types of products. Using trade-off analysis (or conjoint analysis) respondents are forced to trade off different attributes of a product. For example they would not be able to get all the best possible attributes at the lowest possible price but must make choices concerning how they will spend their limited resources.

3.1.1 Simple Trade-Offs: Consumers

Each respondent had to make a choice between 3 different type of wood furniture described by one level from each of the six attributes. They could also select none of the choices given. Respondents had to do this twenty times with different levels used for the same attributes. Levels and attributes were chosen with input from the project steering committee and additional input from BC representatives in Japan. They are shown in Table 10.

Table 10 shows the proportion of times a certain level within an attribute was selected. The statistical software used for conjoint analysis also completes statistical tests to ensure that differences are significant and not due to random chance.[6] Because there are over 2,000 choices made by over 125 consumers even a small difference can have meaning.

The way this table can be read follows:

- 20% of the time consumers selected an inexpensive price,
- 27% of the time consumers selected an average price

Because there are more than 2,000 selections the impact from the other attributes is minimized.

Table 10: Consumers' Relative Selection of Levels within Attributes for Household Furniture

Attribute Level	% of time selected	Attribute Level	% of time selected
Price		***Colour***	
inexpensive	20%	very light	31%
average expense	27%	light	24%
slightly above average	30%	medium	20%
above average	24%	dark	24%
Location in House		***Durability***	
furniture for kitchen	25%	lasts 2 years	12%
furniture for living room	25%	lasts 5 years	22%
furniture for bedrooms	24%	lasts 10 years	31%
furniture for dining room	26%	lasts 20 years	35%
Finish		***Design***	
natural finish	25%	fine European design	30%
paint finish	25%	Scandinavian design	28%
laminate finish	24%	traditional Japanese design	19%
stain with clear finish	26%	American (casual living)	22%

[6] Within each attribute there was a significant difference between levels tested using a Chi Square at $\mapsto$ = .01

Price Over half of the respondent consumers are willing to pay an above average price for household furniture. This makes the findings on the other attributes very important since it is of interest to know what furniture characteristics consumers are willing to pay a premium for. Price is considered the most important product attribute (a very typical response) and the spread of consumers among price ranges shows there are different segments and niches of considerable size for both low cost and premium furniture.

Location in House Almost an equal number of respondents are interested in furniture in each of the four locations: kitchen, living room, bedroom and dining room. Thus BC suppliers can consider furniture for one, a few or all of these locations.

Finish Results are similar to location in house and do indicate a good potential market regardless of type of finish. However a natural finish is selected most frequently but only by a small margin.

Colour Over half of the respondents select a light or very light finish. This indicates potential for the lighter coloured woods from BC such as Pine or Hemlock. It is also interesting to note a large segment (24%) prefers dark colours, which may indicate an opportunity for Douglas fir furniture. Remember that the colour of finish is a fairly important product attribute in the questionnaire results.

Durability Over two thirds of consumers prefer furniture to last 10 years or more. This indicates very little market share (<12%) for low-quality, low-priced, temporary furniture. If producers wish to access the Japanese market they should only do so with furniture that will have good durability. Remember that durability ranks second only to price in the relative importance of furniture attributes in the questionnaire.

Design Fine European and Scandinavian designs are selected the most. This suggests a possibility for BC furniture producers to use some Scandinavian design elements in their wood furniture targeted towards Japan. American or casual living design is selected by 22% of respondents who would constitute a sizable market in a country of over 120 million persons. BC furniture manufacturers are most familiar with this style and already have existing design and production expertise in this area. It would require the least modification of existing production facilities or manufacturing processes. Remember that design followed only price and durability in relative importance in the questionnaire.

3.1.2 Consumers' Two Way Trade Offs for Furniture

Results also show how two different attributes interact with each other. People making purchasing decisions do not rely on a single product attribute in making their selection but rather on many attributes and how they interact with each other.

Only certain two-way trade offs are presented. Those interactions omitted are for the following reasons: 1) they provide little useful information, 2) there is little difference between different combinations or 3) statistical analysis indicated unreliable results. The results are summarized without presenting the tables or details of analysis for brevity.

Interaction between Price and Location in House

- If consumers are willing to pay above average prices for furniture it will be for dining rooms and, to a lesser degree, kitchens.
- If they are willing to pay slightly above average prices it will be for dining rooms and bedrooms.
- Consumers are less price sensitive than many of the others groups interviewed with large consumer segments willing to pay above average prices for furniture in most rooms of a house.

Interaction between Price and Finish

- More consumers are willing to a small premium for a natural finish on their furniture.
- To a much lesser extent they are also willing to pay a small premium for a painted finish.
- Most respondents are only willing to pay the average expense for laminate or stained furniture with clear finish .

Interaction between Location in House and Colour

- Light or very light colours are preferred in the living room (and some dark colours).
- In the kitchen medium and light colours are selected most frequently.
- In bedrooms medium and very light colours are the most frequent choice.
- In the dining room dark and light colours are selected most frequently .
- It is surprising that dark colours for wood furniture do have a place in the Japanese house, most likely with a light coloured floor (see section on Interior Finish).

Interaction between Location in House and Design

- For all four locations in the house Scandinavian and Fine European design are the most selected with American ranking third.
- American or casual living design is selected most frequently for use in kitchens and living rooms.

Interaction between Durability and Design

- Scandinavian and fine European design are expected to last the longest followed by American design and lastly Japanese styles
- Given the relative importance of both durability and design in the questionnaire results, a product with Casual Living design but "built to last like fine European furniture" may provide market opportunities in Japan.

3.2 Designers

The 50 designers were also asked to make choices between *different types of products.*

3.2.1 Simple Trade Offs: Designers

Results for simple trade-offs are shown in Table 11.

Table 11: Designers' Relative Selection of Levels within Attributes for Furniture

Attribute Level	% of time selected	Attribute Level	% of time selected
Price		***Colour***	
inexpensive	26.9	very light	28.1
average expense	27.6	light	30.3
slightly above average	24.8	medium	22.7
above average	20.6	*dark*	18.7
Location in house		***Durability***	
furniture for kitchen	21.7	lasts 2 years	10.7
furniture for living room	27.4	lasts 5 years	23.9
furniture for bedrooms	25.4	lasts 10 years	32.3
furniture for dining room	25.4	lasts 20 years	33.1
Finish		***Design style***	
natural finish	32.1	fine European design	22.4
paint finish	27.3	Scandinavian design	33.0
laminate finish	16.1	traditional Japanese design	19.3
stain with clear finish	24.6	American (casual living) design	25.3

Price There is very little difference between selections in price categories. This suggests that there are markets for low cost, average cost and high cost furniture depending on the market segment or niche. In fact statistically there is no difference between the four price categories.

Location in House Once again there is little difference between location in the house for furniture.

Finish A laminate finish is selected the least amount of time while a natural finish is selected most frequently. Well over half of the respondents selected either a natural finish or a stain with a clear finish. Both of these types of finish enable the grain to show through suggesting that type of cut, which leads to visible grain, is key to targeting the Japanese market for furniture.

Colour While all colours are selected, lighter colours are preferred by almost 60% of the respondents. This reaffirms the apparent trend towards light coloured wood that facilitates BC producers because of the preponderance of Pine in the interior and Hemlock on the coast, both light coloured woods.

Durability About two thirds of the respondents expected furniture to last at least 10 years. There is little interest in "disposable" furniture with a 2-year duration but almost a quarter would accept furniture lasting only 5 years.

Design Style Scandinavian furniture is selected most frequently followed by North American casual, fine European design and lastly traditional Japanese design. However given the expected growth in NA casual we may see this style overtake fine European design within the next 5 years.

3.2.2 Two Way Trade-Offs: Furniture

Results also show how two different attributes interact with each other. People making purchasing decision do not rely on a single product attribute in making their selection but on many attributes and how they interact with each other. Detailed results are not discussed by only results that have some practical application.

Interaction between Price and Durability

- These two are the highest ranked attributes and there is a direct relationship between willingness to pay a premium and how long the furniture is expected to last.
  - Any furniture targeted towards an above average selling price in Japan must have a long life.
  - Conversely if the low priced market is targeted a longer than average life of at least 10 years would be a beneficial selling point.
  - Designers expect a price break for furniture, which will last 10 years or less.

Interaction between Location in House and Finish

- Respondents indicate a strong preference for natural finishes in living rooms, bedrooms and dining rooms.
- For kitchens they preferred a paint finish or a stain with a clear finish.

Interaction between Location in House and Design

- North American (casual) or Scandinavian style is preferred for living rooms.
- The same is true for bedrooms.
- Casual design is not selected for dining rooms very frequently.
- In the kitchen casual design is strongly outranked by Scandinavian design.
- Exports should focus on living room furniture first followed by bedroom sets.

Interaction between Colour and Durability

- It is interesting to find that respondents consider a lighter colour to be associated with more durable furniture. This may be due to the fact that the high quality Scandinavian furniture that has been imported into Japan is predominantly light colours.

4 Market Simulation

The conjoint analysis software enables analysis of market share potential and changes for different products with various levels of attributes. This allows calculation of potential market share given the production of various styles of furniture. While not all possible combinations will be calculated or shown the potential for furniture from BC will be explored by presenting several scenarios. For this analysis the results from designers and consumers are combined to produce sufficient responses for statistical analysis.

4.1 Living Room Furniture

The first market share run was to determine a base line for different styles. All furniture was for living rooms finished with a stain with a clear finish. Other attributes are shown in Table 12.

Table 12: Market Share based on Design for Living Rooms[7]

Product 1	Product 2	Product 3	Product 4	none of these
American design	Scandinavian design	Japanese design	European design	
avg. price	avg. price	avg. price	above avg. price	
light colour	light colour	medium colour	medium colour	
last 10 yrs.	last 10 yrs.	last 20 yrs.	last 20 yrs.	
17.5%	**17.5%**	**21.2%**	**30.1%**	**13.6%**

- North American design could capture the same market share as Scandinavian furniture (17.5%) assuming similar prices and colours

If the colour for North American designed furniture changes to very light and everything else remains the same some changes occur. The market share for NA furniture increases to 21.3% at the expense of Japanese and European furniture. It is interesting to note that Scandinavian furniture also increases despite no changes to attributes. If durability is changed to twenty years there are no changes in market share.

- A lighter colour will increase market share.
- Increased durability will not impact market share but decreased durability will erode market share.

[7] Price and colour are based on typical market conditions in Japan. Durability is based on the authors' view of Japanese opinion.

If price is to be changed the following results occur. Decreasing price alone would increase market share for NA designed furniture from 17.5% to 21.2 %. Almost the same share increase could be accomplished by switching to lighter colours. If price were to increase slightly then market share increases to 22.8%. This important result indicates that lowering price does NOT increase market share most likely due to a price/quality linkage in the minds of the end-users.

- Pricing should be slightly above Scandinavian products indicating a superior product (it must be emphasized that the quality of construction and finish must be at least equivalent to Scandinavian furniture).
- Lowering price buys no more market share than switching to very light colours through material sorting or species selection.
- Market share for NA designed furniture does not change if the finish changes from a stain with a clear finish to a natural finish.

4.2 Bedroom Furniture

All furniture was finished with a stain and a clear finish with other attributes shown in Table 13.

Table 13: Market Share based on Design for Bedrooms[8]

Product 1	Product 2	Product 3	Product 4	none of these
American design	Scandinavian design	Japanese design	European design	
avg. price	avg. price	avg. price	above avg. price	
light colour	light colour	medium colour	medium colour	
last 10 yrs.	last 10 yrs.	last 20 yrs.	last 20 yrs.	
17.3%	**17.3%**	**20.9%**	**31.4%**	**13.2%**

Results are similar to those for living room furniture.

- Share increases (21.1%) for NA furniture if a very light colour is used.
- However reducing price cuts into market share and reduces it to 15.9%.
- Increasing price slightly increases share to 23.5%.
- **Lowering price decreases market share while increasing price increases market share.**
- Market share for NA designed furniture does not change if the finish changes from a stain with a clear finish to a natural finish.

[8] Price and colour are based on typical market conditions in Japan. Durability is based on the authors' view of Japanese opinion.

4.3 Kitchen Furniture

All furniture was finished with a stain and a clear finish with other attributes shown in Table 14.

Table 14 Market Share based on Design for Kitchens[9]

Product 1	Product 2	Product 3	Product 4	none of these
American design	Scandinavian design	Japanese design	European design	
avg. price	avg. price	avg. price	above avg. price	
light colour	light colour	medium colour	medium colour	
last 10 yrs.	last 10 yrs.	last 20 yrs.	last 20 yrs.	
18.3%	**18.3%**	**22.1%**	**26.8%**	**14.6%**

- Share increases to 22.1% if a very light colour is used.
- Share increases to 22% if price is reduced and share increases to 20.9% if price is increased slightly.
- Scandinavian styles track changes in North American styles and seem to be replacements for each other.

4.4 Market Share Summary

Scandinavian and North American style furniture seem to share equally between a third and half of the market available for living room, bedroom and kitchen furniture. For North American design, the most suitable for BC producers, lowering price does little to increase market share and actually charging a slight premium seems to add market share. This could be due to a price/quality perception among consumers and designers. Switching to a lighter colour increases market share for each room by between 2-4% and producers should select species most suitable to producing very light coloured furniture.

Numerous scenarios are possible in market share analysis and not all possibilities are shown in this report. Should BC producers desire additional analysis please contact the authors.

[9] Price and colour are based on typical market conditions in Japan. Durability is based on the authors' view of Japanese opinion.

5 Summary of Key Results

5.1 Summary of Key Results

- Most consumers will replace their furniture (in order of importance) because it is worn out, to change the style or because they are building or moving to a new home.
- Consumers and designers rank durability as the most important attribute for furniture after price.
- Two thirds of all respondents want furniture to last 10 years or more with a sizable proportion of respondents expecting furniture to last the life of a house (20-25 years).
- Design and colour of finish are also important attributes for both consumers and designers.
- Both groups indicate opportunities for light coloured furniture such as that made from BC Pine or Hemlock.
- Consumers prefer dark colours for dining rooms and lighter colours for all other rooms.
- The country of manufacture is not important to either group.
- Consumers and designer strongly prefer wood furniture with metal and plastic the least preferred.
- Both groups prefer Scandinavian and fine European designs. However the greatest growth for the next five years is expected in North American casual design, good news for Pine furniture manufacturers in BC.
- American or casual living design is expected to increase much more rapidly than Fine European (2nd), Scandinavian or others.
- Consumers consider casual design most suitable for use in kitchens and living rooms while designers considered this design most suitable for living rooms and bedrooms.
- There are substantial sized market niches for both inexpensive and above average priced furniture for both groups.
- Consumers usually consider premium priced furniture in dining rooms and to a lesser degree in bedrooms and kitchens.
- Consumers are willing to pay a small premium for natural finishes while designers prefer a natural finish but did not exhibit the same willingness as consumers to pay premiums.
- Living Room Furniture
  - North American (casual) design should capture as much market share as Scandinavian furniture.
  - A lighter colour will increase market share.
  - Increased durability will not impact market share but decreased durability will erode market share.

- Bedroom and Kitchen Furniture
  - North American (casual) design should capture as much market share as Scandinavian furniture.
  - Lighter colours increase market share.
  - Decreasing price decreases market share while increasing price slightly increases market share.
  - Changing the finish to a natural finish does not increase market share.

5.2 Opportunities for Wood Furniture

- The best opportunity for BC furniture manufacturers is to produce furniture for living rooms and (to a lesser extent) bedrooms.
- Design should focus on North American casual, which will require only minor modifications from existing designs to appeal to the Japanese customer.
- Furniture should be durable, carry a quality assurance label and use natural finishes for some of the product lines.
- Price should be comparable to Scandinavian furniture.
- The best opportunity is for regularly priced solid wood furniture of American design (possibly with some Scandinavian influence) that is light in colour, targeted for living room or kitchen use, uses natural finish and will last 20 years or more.
  - Pricing should be equal to or slightly above existing prices for furniture of Scandinavian design.
  - Build furniture based on Canadian Pine furniture manufacturing base and adjust design, size and marketing for the Japanese market.
  - Develop new line of Hemlock furniture for living room and possibly kitchen.

Appendix 1: Wood Furniture Survey Questions for Consumers and Designers

General Questions to Consumers

sex female_____ male_____

age 20and over _____ 30 and over_____ 40 and over_____ 50 and over_____ 60 and over_____

education mandatory _____ high school graduate _____ university/college _____

graduate institute _____

income (000's) 300Y_____ 300 – 500Y_____ 500-700Y_____ 700-1000Y_____ 1000_____

Who will make the big purchase decisions?

wife_____ husband_____ not applicable_____

1. Do you currently own your own house?

YES _____ NO _____

If NO please indicate when you plan to purchase a house and go to question 4 _____ years

2. When do you expect to replace your existing house?

_____ within the next 12 months

_____ the time period from 13-24 months

_____ from 3 to 5 years from now

3. Why will you replace your house?

_____ current house is no longer sound due to decay

_____ current house is no longer structurally sound

_____ current house too small

_____ current house needs costly renovations

_____ current house needs style changes

_____ other (please specify) _____

4. Which type of house do you prefer?

_____ wood post and beam (traditional)

_____ wood 2 by 4 (platform frame)

_____ hybrid (mix of post & beam and 2 by 4)

_____ steel or concrete

_____ pre-fabricated

_____ do not care

5. Are you aware of the growing concern over formaldehyde emissions in Japanese homes?

YES _____ NO _____

6. Would you be interested in a panel with 1/50th of the formaldehyde emission levels of government standards?

YES _____ NO _____

7 Would you be prepared to pay a small premium for such a panel?

YES _____ NO _____

8. Who do you expect to live in you new house?

_____ your immediate family (husband, wife and children)

_____ your extended family (husband, wife, children and parents)

9. How big a house do you expect to build or purchase?

_____ < 30 tsubo

_____ 30-39 tsubo

_____ 40-49 tsubo

_____ 50 tsubo or larger

Questions for Consumers on Quality

10. Would an independent quality assurance label increase your level of confidence when purchasing...

	YES	NO
wood furniture	❑	❑
building systems	❑	❑
interior finish	❑	❑
outdoor furnishings	❑	❑

11. Would you feel more confident with a quality assurance label from... *(check one)*

... the country of manufacture ❑

... the country of purchase ❑

... does not matter ❑

12. When purchasing wood products, how important is it to you to know that the product has been tested to meet some recognized standard? *(circle one)*

not at all important 1 2 3 4 5 extremely important

13. Given the choice, would you prefer to see a quality assurance program certify... *(check one)*

... quality in the process *(how well the product is manufactured)* ❑

OR

... quality in the product *(how well the product fulfills its intended function)* ❑

14. How important are the following factors in determining the quality of wood products you purchase?
(circle one for each factor, with 1 being not at all important and 5 being extremely important)

product performance *how does the product perform in its intended function?*	1 2 3 4 5
product features *what types of features does the product have relative to the competition?*	1 2 3 4 5
product reliability *if used properly, will the product operate without failure over a specified time?*	1 2 3 4 5
product conformance *is the product defect-free and does it meet with known standards?*	1 2 3 4 5
product durability *how much can the product be used before it needs to be fixed or replaced?*	1 2 3 4 5
Product serviceability *is the product easy to maintain and is service speedy and dependable?*	1 2 3 4 5
product aesthetics *how does the product look, feel, etc. and is there a variety of styles?*	1 2 3 4 5
perceived quality *does the manufacturer have a reputation or a recognizable brand name?*	1 2 3 4 5

Questions for Consumers on Wood Furniture

15. Please rank the three most important of the following product attributes with number 1 being the most important.

_____ price
_____ type of finish
_____ colour of finish
_____ how long it will last (durability)
_____ design is very fashionable
_____ where the furniture is made
_____ where the furniture is sold

16. Please indicate the relative preference for the material that your furniture is built out of.

	Low preference						High preference
wood	1	2	3	4	5	6	7
metal	1	2	3	4	5	6	7
plastics	1	2	3	4	5	6	7
composite	1	2	3	4	5	6	7

17. Please indicate how long you expect furniture to last.

_____ 1 - 5 years
_____ 5 - 10 years
_____ over 10 years

18. How do you expect the popularity of the following design to change over the next 3 years? (one check in each of 4 rows)

	Increase	Decrease	Stay the Same
fine European	_____	_____	_____
Scandinavian	_____	_____	_____
traditional Japanese	_____	_____	_____
American (casual living)	_____	_____	_____

19. Why will you next replace your furniture? (check all that apply)

_____ To change style
_____ Because it is worn out
_____ Moving to new house
_____ Other (please specify)_____

General Questions for Designers

5. Would an independent quality assurance label increase your level of confidence when purchasing...
(check YES or NO for each product type)

	YES	NO
wood furniture	❑	❑
building systems	❑	❑
interior finish	❑	❑
outdoor furnishings	❑	❑

6. Would you feel more confident with a quality assurance label from... *(check one)*

... the country of manufacture ❑
... the country of purchase ❑
... does not matter ❑

7. When purchasing wood products, how important is it to you to know that the product has been tested to meet some recognized standard? *(circle one)*

not at all important 1 2 3 4 5 extremely important

8. Given the choice, would you prefer to see a quality assurance program certify... *(check one)*

... quality in the process *(how well the product is manufactured)* ❑

OR

... quality in the product *(how well the product fulfills its intended function)* ❑

9. How important are the following factors in determining the quality of wood products that you purchase? *(circle one for each factor, with 1 being not at all important and 5 being extremely important)*

product performance *how does the product perform in its intended function?*	1 2 3 4 5
product features *what types of features does the product have relative to the competition?*	1 2 3 4 5
product reliability *if used properly, will the product operate without failure over a specified time?*	1 2 3 4 5
product conformance *is the product defect-free and does it meet with known standards?*	1 2 3 4 5
product durability *how much can the product be used before it needs to be fixed or replaced?*	1 2 3 4 5
product serviceability *is the product easy to maintain and is service speedy and dependable?*	1 2 3 4 5
product aesthetics *how does the product look, feel, etc. and is there a variety of styles?*	1 2 3 4 5
perceived quality *does the manufacturer have a reputation or a recognizable brand name?*	1 2 3 4 5

Questions for Designers on Wood Furniture

1. Please rank the three most important of the following product attributes with number 1 being the most important.

_____ price
_____ type of finish
_____ colour of finish
_____ how long it will last (durability)
_____ design is very fashionable
_____ where the furniture is made
_____ where the furniture is sold

2. Please indicate the relative preference for the material that your furniture is built out of.

	Low preference						High preference
wood	1	2	3	4	5	6	7
metal	1	2	3	4	5	6	7
plastics	1	2	3	4	5	6	7
composite	1	2	3	4	5	6	7

3. Please indicate how long you expect furniture to last.

   _____ 1 - 5 years
   _____ 5 - 10 years
   _____ over 10 years

4. How do you expect the popularity of the following design to change over the next 3 years? (one check in each of the 4 rows)

	Increase	Decrease	Stay the Same
fine European	_____	_____	_____
Scandinavian	_____	_____	_____
traditional Japanese	_____	_____	_____
NA (casual living)	_____	_____	_____